TAC Meeting – June 9, 2008
Announcements from the Chair

Welcome to the June meeting of the Wastewater Technical Advisory Committee.

On our agenda this evening we have two technical memorandums to review. The first on our agenda is titled 'Solids Handling Options', the second will be 'Septage Receiving Station Option'. Each item will first be introduced by the Project Team then discussed by the TAC prior to taking public comment.

It is important that everyone understands the difference between solids and septage. Solids are the dried or partially dried residue that comes out of the treatment plant and depending on the level to which it is treated is either hauled to a remote landfill or composted for direct application to irragatable lands. Septage is the semi-solid materials that accumulate in septic or STEP/STEG tanks and is pumped and hauled to a special receiving facility such as in Santa Maria.

Remember that the TMs we discuss are responses by the Project Team to information requests or questions raised by the independent EIR Team and do not imply that they have been chosen as a component of the wastewater project. The TAC's task is to review, question, and comment, and receive public input on the content of these TMs, especially as it pertains to the effects we believe it might have on Los Osos.

Those of you who might wish to comment during the public comment period should restrict your comments to the contents of the tech memo. If you believe that there is an alternative solution to the topic under discussion you should submit that information directly to the Project Team at LOWWP@co.slo.ca.us. In order for us to get through our agenda and adjourn by 9:30, I need to ask you to abide by these rules.

I would like to again remind everyone listening to us this evening that water conservation is a critical assumption for the design of our wastewater facility regardless of the technology adopted. Although the Board of Supervisors passed ordinances designed for retrofitting plumbing fixtures in the community, without voluntary water conservation by individuals we will not achieve our goals. Flushing your toilets less frequently, monitoring use of showers, and landscaping for minimal water usage are measures easily taken that will produce the results we seek.

The next and final meeting of the TAC on TMs will be held on Monday, June 30th. We will then break for the summer and reconvene after the draft EIR is published.

Before we start our agenda, John Waddell of the county project team would like to add a few comments on the status of the EIR and revised 'Out of Town Conveyance' TM.

Los Osos TAC Meeting June 9, 2008

I am Thomas A Ruehr, Los Osos resident

According to the Fugro West 2004 report, the 30 gallons of waste water to be applied per square foot per day represents 48.1 inches of water per day. Morro Bay received 8.82 inches of rain in the entire month of March, 1959. The proposed infiltration rate at Broderson is 5.5 times the total rain for one month being applied **every single day**.

The previous sewer project in 2001 called for 7 gallons per square foot per day equal to 11.2 inches per day. This is about the same as a tropical rain forest.

Despite spending millions of dollars on studies, the engineers continue to make the same errors because they are using the wrong sources of information. This EPA, 1981 manual (page 8-2) was the wrong one to use.

The AB 885 draft recommends a maximum rate of 1.2 gallons per square foot per day equal to 1.9 inches per day.

However, the EPA 1980 report (Page 4) Table 7-2 says coarse sand and gravels are not suitable for recharge. Fine loamy sands should not exceed 0.8 gallons per square foot per day. This corresponds to an application of 1.28 inches of water per day. Even this is too high for the Los Osos Dune sands.

These Los Osos sands are well rounded wind blown deposits. If high water loading rates are applied, the rounded nature of these sand grains will lubricate an earthquake seismic event (acting similar to marbles) resulting in liquifaction of the land down slope from the Broderson and other recharge sites destroying many homes in the process.

Waste water contains nitrogen. Instead of trying to eliminate it during the sewage treatment process, it makes much more sense to **work with nature** and allow plant vegetation to utilize this nitrogen for growth. In the past two years, the price of nitrogen fertilizer has increased over 5 fold. This makes any source of nitrogen for agriculture **a gold mine** and not a waste product requiring disposal.

We must **not waste** the water. Plants can use this water for normal growth. Nitrogen as a plant nutrient is **too valuable** to eliminate it.

We must have a **reasonable water application rate** and it must prevent any possibility of **liquifaction** on the hillsides of Los Osos.

The EIR must address these issues completely.

FROM: GAIL McPHERSON

CITIZENS FOR CLEAN WATER

PROHIBITION ZONE LEGAL DEFENSE FUND

DEDICATED TO CLEAN WATER, REGULATORY COMPLIANCE AND PROTECTION OF PROPERTY RIGHTS

June 9, 2008

RE: Response to Technical Memoranda- Septic Receiving Stations, Biosolids handling, and general comments on Broderson (nitrogen management) and related disposal issues awaiting responses:

The Citizens for Clean Water respectfully submits the following comments orally and in writing to the County Wastewater Project consultants, including EIR consultant Michael Brandon Associates.

Abbreviated oral comments were provided at the June 9, 2008 Technical Advisory Committee based on time allowances.

TM Septic Receiving Station:

This Technical Memorandum is quite comprehensive and well prepared. However, the proposal for regional facilities perhaps belongs to the County to develop outside the Los Osos project.

In their past commentary both the Coastal Commission and the Regional Water Board have expressed a strong desire to incorporate county-wide septic receiving facilities into any project options for Los Osos. However, this is in no way a regulatory, permitting, or community mandate for the Los Osos project. A regional septic disposal facility is ancillary to any project selected, and not a required element to the Los Osos project. The discharge prohibition zone established by the Water Board in 1983 is the only basis and impetus for the current project.

The most basic of questions concerning septic receiving for a Los Osos project is: ***Should any facility for septic receiving be part of the Los Osos Wastewater project?*** Other communities do not currently dispose of their community septic waste at their own facilities. Many objections for siting are diminished if the plant does not include septic receiving.

If septic disposal is determined to be included for local volumes only, a simple decision tree chart would be helpful to describe at what point it is cost effective. An example might be if STEP conveyance is selected, there may be a benefit of providing a facility for the district systems, and allow local septic loads outside the prohibition zone.

Residential tanks outside the prohibition zone are not distinguished from the STEP tanks, although the size and the operation differs. The correct volumes of each should be included in an abbreviated TM that corrects the tank sizes, and pumping frequencies

based on AB 885 which does not require pumping at five year intervals, but has inspection protocol. The contents of the tank that are pumped is a portion of the total volume, perhaps just 25% of the assumed volumes for tanks. Segregating the septic receiving issues upfront from the project requirements will help to avoid misleading the public concerning the required elements for the community project, as well as any misconceptions about assumed benefits. By limiting the Los Osos septic facilities and correcting assumptions for household septic tanks outside the prohibition zone, versus STEP interceptor tanks, good decisions can be made.

The information developed here should perhaps be a cost to the county, and credit given to the Los Osos project. If a decision is made to include septic receiving at all, the addition cannot be the tail wagging the dog. In other words, only after the selection of the best value project technology should the possible "value added" optional elements be considered. The collection, treatment type and disposal issues cannot be driven by optional elements of the project if sustainability (based on full costs and environmental impacts) is central to the outcomes.

TM Biosolids Handling:

The TM for treatment of solids from various processes was estimated based on the full strength influent at 4,000 lbs dry solids/day for a gravity collection system and 1,000 lbs dry solids/day for a septic tank effluent pumping/gravity (STEP/STEG) system. Is the capacity for the plant sized based upon septic receiving alternatives? The septic receiving alternatives combined with the different liquids treatment processes that produced "multiple solids estimates, ranging from 570 to 5,400 dry lbs/day of solids to be treated." This is a huge range. As noted above and in the TM, if the County wishes to develop regional facilities, all components would be developed and considered, and the costs shared regionally. That seems outside this process.

The TM planning for the project and future options should be considered based on the risks and liabilities for onsite handling versus offsite handling and disposal. The Federal 40 CFR 503 regulations are enforceable standards and requirements specifically detailed in the waste discharge requirements. The process requires basic solids separation, digestion, and removal. As system complexity is added, the capital and operating costs increase. Staffing, and energy and costs for treatment, monitoring/testing, reporting, and contingency plans for disposal as well as emergency plans is ever increasing.

The siting and neighborhood concerns increase with onsite options such as composting and dedicated land application, following the basic treatment processes. However, truck traffic for frequent removal has to be balanced with the onsite concern for solar drying or composting. Master planning for the full project with multiple options for disposal is required. The future of any one solution for Biosolids disposal is not secure.
Again, any added element that is not specifically required within the treatment train should be reviewed as an option after the selection basic project technology, and included to produce value added, if applicable.

General Comments: Disposal at Broderson Nitrogen Management and the Nitrogen cycle.

It is disappointing that much of the current engineering reports have not worked toward a shift from the "nitrogen removal" mindset to a "nitrogen management" mindset for Los Osos. The Attached Ag Alert clearly indicates how nitrogen fertilizer costs for farmers are increasing lockstep with energy prices. Note the statement from Imperial County farmer indicating that his 11-52-0 ammonia fertilizer has increased from $240/ton to $1,200/ton in three years. It is certainly foolhardy for LO farmers to be importing nitrogen from China and other world producers when a substantial portion would be available in the tertiary effluent (that would otherwise consume a large energy demand if denitrification was necessary).

Aside from the flawed design criteria for loading, the uncertainty of the capacity and value, and perhaps even the larger barrier of the tangled political and district financial issues clouding the use of Broderson, is that Broderson triggers nitrogen removal, where in-lieu ag exchange triggers nitrogen management. Citizens for Clean Water and many others hope to ensure that County consultants and staff understand the full life cycle costs and consequences this basic premise.

Thank you in advance for your timely responses to these concerns.

Gail McPherson
Director, CCW
805-534-1913

from-GAIL McPHERSON

Photo/Kate Campbell

Yolo County farmer Tim Miramontes prepares to inject a pre-plant application of aqua ammonia to a field that will be planted to rice.

Fertilizer prices continue to escalate

By Kate Campbell

Mention fertilizer prices to California farmers and worry creases instantly deepen on their sunburned faces. That's because, along with prices for everything else needed to produce healthy crops—seeds, water, fuel, wages, equipment, government fees and taxes—fertilizer prices are exploding.

Part of the reason is the huge jump in ammonia prices in the past few years. In less than five years prices have increased more than 130 percent, according to the U.S. Department of Agriculture. But that's not the worst part.

Last year those price increases accelerated and now California wholesalers are telling fertilizer distributors to brace for more rounds of price hikes in the coming weeks and months. Fertilizer prices, which had been stable for many years, now are increasing weekly, sometimes daily. And, some fertilizer products simply aren't available.

For basic crop nutrients like phos-

See FERTILIZER, Page 18

Fertilizer

Continued from Page 18

"Producers are less likely to select broadcast applications at the traditional average rates," Koep said. "Trends show they're more likely to consider and use more precise application tools like air application systems and variable rate input applications."

For small farmers like Miramontes, who is just starting out in farming, coping with rising prices on all inputs is a constant challenge. Replacing equipment to employ the latest precision application technology is a luxury he says is hard to justify.

"It seems like the cost of everything goes up when we get a chance to make some money," he said, referring to strong commodity prices for rice, wheat and oil crops, all of which he grows. "But when the cost of everything else goes up too, I'm just not sure the returns will be there when we harvest."

(Kate Campbell is a reporter for Ag Alert. She may be contacted at kcampbell@cfbf.com.)

Fertilizer

Continued from Page 1

phate, potash and, especially nitrogen, fertilizer manufacturers have faced a quadrupling of prices for these international commodities in just the past few years.

"Fertilizer prices are going way, way up," said Yolo County farmer Tim Miramontes. "Last year we were paying about $120 a ton for aqua ammonia. Now it's up to $200 a ton. Our suppliers are telling us phosphates are in very limited supply.

"It seems like fertilizer companies are following the oil companies in claiming short supplies," said Miramontes as he prepared to fertilize his rice fields before planting. "Fortunately for us, commodity prices have also increased, but not in all commodities. It seems like we never catch up.

"But, my view on fertilizer prices is a local one," said Miramontes, who is president of Yolo County Farm Bureau. "Fertilizer components are worldwide commodities. We recognize that there's greater global demand for food and for increased crop yields, which fertilizers promote.

"Here in the United States we're dependent on imports for much of our fertilizer ingredients—nitrogen, for example, which comes from China, Russia, Canada and the Caribbean. That means we're at the mercy of global markets to produce local crops."

The United States depends on imported ammonia, primarily from Trinidad and Tobago, Russia and the Ukraine, as well as Canada and Venezuela for about half its national needs.

In the past five years, however, U.S. nitrogen production capacity has declined 35 percent, the USDA said. As a result, ammonia imports are rising and farmers are increasingly being buffeted by global pricing. Between 2000 and 2006, U.S. ammonia imports jumped 115 percent.

"Prices for the kind of ammonia fertilizer I use—11-52-0—have gone absolutely berserk," said Imperial County farmer Ed Hale. "It's $1,200 a ton right now, but three years ago it was $240 a ton. Basically, the price has jumped a thousand dollars a ton in just a few years.

"It used to be fertilizer prices were the same for 10 years, but now we call every week to find out what the new price is going to be," Hale said. "And most of the time they won't quote you past a few weeks out."

"Fertilizer prices are going way, way up. Last year we were paying about $120 a ton for aqua ammonia. Now it's up to $200 a ton."

— Tim Miramontes
Yolo County farmer

The reasons for the astronomical price increases for fertilizer are complex. Emerging nations, like India and China, are feeding larger, more affluent populations and are therefore growing more crops, particularly for livestock feed.

The weak U.S. dollar has eroded buying power for global commodities and materials. Transportation costs for shipping basic fertilizer materials are soaring, particularly fuel costs.

"U.S. corn production, which requires considerable amounts of fertilizer for good yields, has greatly increased due to ethanol conversion. Corn is a fertilizer-intensive crop, but Midwestern growers have been able to absorb fertilizer cost hikes more easily than farmers elsewhere because of higher commodity prices.

At the same time prices for major field crops have been going up, California growers haven't seen a similar increase in the prices paid for specialty crops like fruits and vegetables. They say the wild jumps in fertilizer prices have really hurt.

"In some cases, fertilizers this year cost two times more than they did last year," said Riverdale grower Dan Errotabere.

"These price increases have affected a lot of grower decisions on what is planted. More than ever, the amount of water and fertilizer a crop needs is figuring big in farm plans.

"The first thing in our area that's driven down crop plantings is water, but fertilizer prices and availability are also playing a big part," said Errotabere, who is first vice president of Fresno County Farm Bureau.

Kathy Mathers, spokeswoman for the Washington, D.C.-based Fertilizer Institute, said, "The Chinese government has just announced that it's moving from a 35 percent tariff on fertilizer exports to a 135 percent tariff. In other words, China's two major fertilizer manufacturers will have to pay these export fees before selling them overseas. China is the world's largest exporter of urea.

"The intent is to keep fertilizer in China for domestic use. China is one of the world's leading producers of urea, a nitrogen product, and this move will further tighten a global market that's already operating with a razor-thin supply/demand margin.

"At this point we don't know how much the impact will be," Mathers said. "China used to be the world's largest importer of urea and phosphate, but now they're one of the world's largest exporters, based on U.S. Commerce Department numbers."

Although U.S. officials and fertilizer

MEMO

TO: Los Osos Technical Advisory Committee DATE: 6/9/08

FROM: Frank Ausilio Frank Ausilio

Attached are 4 pictures of a home in the 400 block of Highland Drive that was flooded by water, mud, and sand sometime in the mid-1980s, when water and sand ran off the hill above Highland. Other homes on the south side of Highland, from the 300 block east to Bayview Heights, also were flooded at the same time.

I would like the Technical Advisory Committee to consider the inherent problems with discharging effluent water at the Broderson site which has had flooding problems in the past. Several community members have mentioned other concerns about this site during public comment at previous TAC meetings.

My concern is that removing several acres of ground and brush cover and then moving thousands of gallons of water to this site will set the stage for future flooding of homes. If the Broderson site is ultimately chosen, then I would recommend that the CSD not take over management of the waste water project, due to the possibility of flood damage to homes above and below Broderson and the lawsuits that will follow.

I will continue my research to get the exact dates, details, and photos of the past flood.

Thank you for considering this serious issue.

Attached: 4 photographs

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2

3

Print this page

FROM: LISA SCHICKER

Everything You Know About Water Conservation Is Wrong

05.28.2008

Forget short showers. Worry about the 6,340 gallons of "virtual water" in your leather bag.

submitted to TAC

by Thomas M. Kostigen

I've been mindful of the amount of water I use when making a pot of coffee ever since learning that one-third of the tap water used for drinking in North America is actually used to brew our daily cups of joe—and that if each of us avoided wasting just one cupful of coffee a day, we could save enough water over the course of a year to provide two gallons to every one of the more than 1.1 billion people who don't have access to freshwater at all.

That is a stark statistic, when as many as 5 million people die unnecessarily each year because of lack of water and water-related illnesses; one-third are under age 5.

So for me that excess cold coffee at the bottom of the pot became a bothersome reminder. But I had never thought beyond that—about how much water it takes to actually grow the coffee. That amount is called virtual water (pdf), and it's the kind of thing you don't really consider until someone brings it to your attention: "Do you know how much water it took to make this?" Virtual water is a calculation of the water needed for the production of any product from start to finish.

Here's how it is figured: It takes about 155 gallons of water on average to grow a pound of wheat. So the virtual water of this pound of wheat is 155 gallons. For a pound of meat, the virtual water is 5 to 10 times higher. There's a virtual water count for everything. The virtual water footprint of a cup of coffee is 37 gallons; an apple, 19 gallons; a banana, 27; a slice of bread, 10; a sheet of paper, 3; and a pair of leather shoes, 4,400, according to Waterfootprint.org, a Unesco-run Web site providing a calculator for individual and national water use. In fact, virtual water in internationally traded food and products such as these accounts for 15 percent of global water consumption.

Virtual water matters a lot these days because we are in an encroaching global water crisis. According to the United Nations Environment Programme, the world needs to increase its water supply (pdf) for irrigation by 14 to 17 percent by 2030 just to meet its dietary needs. Virtual water is where major savings can accrue.

Proper management and use of the world's virtual water already save almost 5 percent of the water used annually in global agricultural production, according to Unesco. This follows a simple logic: Places with less water gain access to foods with high water requirements by importing them from areas with high rainfall or substantial water supplies. This allows water-scarce regions to use their own water resources more efficiently for other purposes—and create water savings. For instance, areas of southern China that have more water and are better equipped to grow certain water-intensive agricultural products can send them to northern China. This frees up northern water supplies for other uses, such as drinking and sanitation. Jordan saves 60 to 90 percent of its domestic water supply by importing water-intensive products.

The water savings are even greater than they seem at first. Producing grain and other foods in an arid country like Jordan may require two or three times the water it takes in humid settings in South America or the United States. So the virtual water saved may be three times the amount that was actually necessary to grow the crop in a more appropriate climate. It's all about being smart with water.

Yet we can be smarter, and need to be.

Right now we lose 30 to 50 percent of the food we grow—and all the virtual water in it—by the time it is ready for consumption, says Daniel Zimmer, executive director of the World Water Council (WWC) in Marseille, France. These losses come in harvesting, production, processing, transportation, and storage. Tossing out leftovers wastes every drop of water it took to grow the food (and think of all the times you don't ask for a doggie bag). Indeed, the third most common refuse found in landfills is food, according to the Environmental Protection Agency. "Sure, a few liters of water are saved when you take a shorter shower," Zimmer says. "But hundreds of liters of water are lost when you throw away food. We have to begin to think about our water use differently."

I like the idea of virtual water because it helps us think about our water use differently without having to make giant, complicated leaps. It puts water into the context it deserves: We use freshwater mostly for agriculture, not for drinking or bathing. Today agriculture accounts for about 70 percent of all water use in the world and up to 95 percent in several developing countries. So it makes sense to first start looking at savings via food production. And when I say savings, I mean efficiencies and better water

management, not necessarily avoiding particular food groups altogether—although that isn't such a bad idea once in a while either. Meat requires 5 to 10 times more water to produce than vegetables do. Swap the two in your diet and you will save up to 750 gallons of water a day. (See "What's Your Virtual Water IQ?" page 26.)

While thinking about water differently should be a moral imperative, in a world view it comes with controversy. "At the global level, virtual water and the trading of it has geopolitical implications," the WWC says in a report on the subject (pdf). "It induces dependencies between countries....This can be regarded either as a stimulant for cooperation or as a reason for potential conflict."

Right now the United States is a water exporter, but population growth, pollution, and lingering drought in vast regions may change that. "As demand grows we are going to have to ask what is it being used for and whether that is a good use of our water," says Maude Barlow, cofounder of the Blue Planet Project. "One-third of the water in the United States is exported as virtual water when a number of major water systems in the United States are in a catastrophic decline. People may begin to say, 'Why are we shipping our water away?'"

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Dominant virtual water exporters in addition to the United States are Canada, Australia, Argentina, and Thailand. Countries with a large net import of virtual water are Japan, Sri Lanka, Italy, South Korea, and the Netherlands. Based on estimated global virtual water trade flows, national virtual water trade balances can be drafted, but getting countries to agree on creating a fair market for water isn't easy. "Trade arrangements, access to markets, finance, and foreign exchange must all be taken into account," the WWC says in its report. For poorer countries those are big obstacles.

International companies are also being pitted against one another because of water shortages and competition for existing resources. The food industry, for example, may end up fighting the biofuel industry for access to arable land as the world runs short of water, warns Peter Brabeck, Nestlé's chairman and chief executive. "We will not find sufficient water to produce all the crops," he told the *Financial Times* in February. "There will be a fierce fight for arable land." But that doesn't have to be the case.

"Companies like Coca-Cola, Nestlé, and many others particularly like the water footprint concept," says Arjen Hoekstra, professor of multidisciplinary water management at the University of Twente in the Netherlands. He notes that because many businesses depend on water as a major component for their products, it's in their best interests to ensure supplies are plentiful to avoid the potential conflicts. "Some companies see the business risks attached to water scarcity and seriously look into how to reduce and offset their water footprint," Hoekstra adds.

In the end, though, water parity and more supply will come only through increased awareness among individuals, as they will drive the larger interests. "It's really about education and getting people to see their own water use and their water footprint; we think that is the first step in conservation," says Scott Cullen, executive director of the nonprofit group Grace (Grass Roots Action Center for the Environment). Along with Food & Water Watch, the Interfaith Center on Corporate Responsibility, and the Johns Hopkins Center for a Livable Future, Grace has developed a water footprint calculator for a joint program, H2Oconserve.org. Initiatives such as this may lead to further developments, such as labeling the water content of products. This, in turn, may lead to even more water-conscious decision making. "Tastes Great...Less Filling...Less Water"—that type of thinking.

It's time to ask how we can make better use of our water supplies so that virtual water doesn't remain the ethereal concept its name suggests. It can be a far bigger source of real-world savings. For my part, I now note waste in different forms. I try to plan or order meals more accurately so I don't have leftovers, and I try to eat lower down the food chain. In short, I try to do what my mother told me as a child—"Eat your vegetables"—because I now know what went into making them: a lot of water.

Our Very Wet Footprint

The average person on earth has a virtual water footprint of about 328,410 gallons each year; that includes everything used to make the food, clothing, and other water-driven products we consume. In China the average footprint is only 185,412 gallons, while in the United States it is 656,012—the largest on the planet. DISCOVER staffers Missy Adams and Corey Powell measured their water footprints using a questionnaire at Waterfootprint.org (and you can too). Questions ranged from how many showers they take each week to whether the water runs while they brush their teeth; from their food preferences to their income.

Research Editor Missy Adams has a relatively small footprint (see chart below), in part because she's light on the laundry and quick with a shower and has a diet driven by vegetables, fruits, and sweets.

Executive Editor Corey Powell likes meat in his takeout, and you're sure to find chicken breasts and beef in his freezer—something to cook up while he's watering his garden or hosing off his sidewalk in Brooklyn.

VIRTUAL WATER USAGE (annual average per person, in gallons)

World	328,410
United States	656,012
Missy Adams	469,792
Corey Powell	1,047,437

To determine your own virtual water footprint, go to waterfootprint.org.

Where's the Water

There are 10,460 cubic miles of freshwater available on the planet as a resource each year, and the breakdown of worldwide access to it just isn't equal. But understanding who has the good stuff and who is in need can allow us to maximize commerce in virtual water, helping balance things out. For instance, Kuwait has essentially no freshwater; its residents live off desalinated seawater, which doesn't count as a direct resource. South America, on the other hand, has an enormous surplus of freshwater due to rainfall and its ecosystem, so it is a great exporter of virtual water. Source: Worldmapper.org. (All percentages are estimates.)

Find out your Virtual Water IQ by taking the DISCOVER quiz.